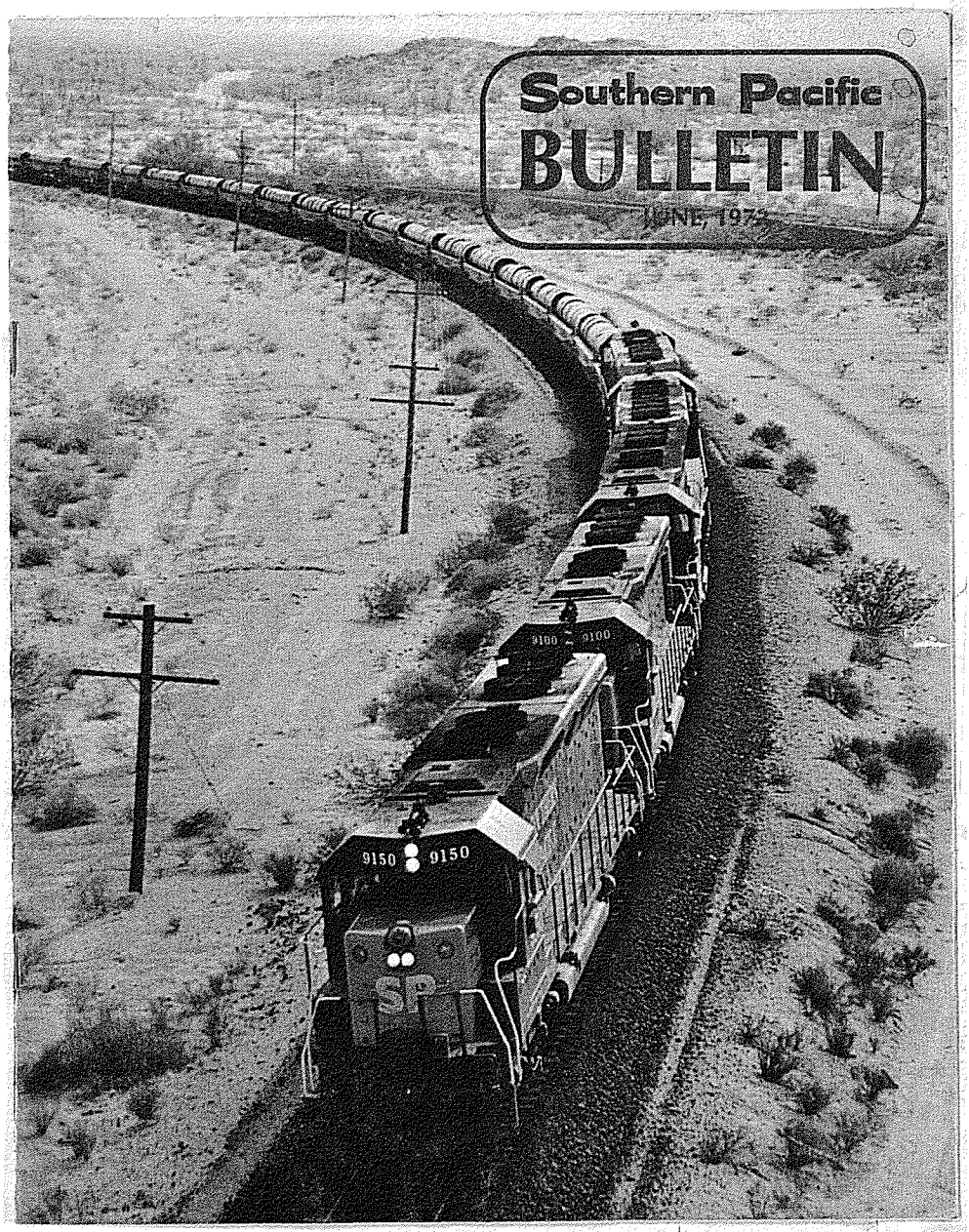

Southern Pacific
BULLETIN
JUNE, 1972
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Summary of the Annual Meeting of Stockholders



Conversation was in order before the Annual Meeting was convened. In the front row, from left, are Directors Thomas M. Evans, Robert A. Magowan and Richard S. Perkins; Stockholder Rolfe E. Glover, Jr., of Wilmington, Del.; Directors Kenneth L. Isaacs and Richard K. Miller; O. G. Linde, president of the Southern Pacific Land Co., and Mrs. Julia K. Tibbitts, a stockholder from Nogales, Arizona.

To The Stockholders of Southern Pacific Company

The Annual Meeting of Stockholders was held on Wednesday, May 17, 1972, at the office of the Company in Wilmington, Delaware. Mr. B. F. Biaggini, President of the Company, presided.

There were 23,733,097 shares of the Company's capital stock, 89.05% of the total outstanding, represented by proxy or in person at the meeting. This evidence of interest by the stockholders in the affairs of the Company is appreciated by the management and directors.

Election of Directors

The following were elected to serve as Directors of the Company until the next Annual Meeting of Stockholders:

Malcolm P. Aldrich	Allan E. Hill
S. D. Bechtel	Kenneth L. Isaacs
Stephen D. Bechtel, Jr.	Robert A. Magowan
B. F. Biaggini	Richard K. Miller
Thomas M. Evans	Henry T. Mudd
Alan C. Furth	Richard S. Perkins
Ellison L. Hazard	William Swindells

Mr. Allan E. Hill, Secretary of the Company, was elected to the Board of Directors in place of Mr. Richard A. Grant who had been a candidate for re-election, but who died on April 27, 1972.

Management Proposals

Management introduced the resolution set forth in the Proxy Statement to ratify and approve the action of the Board of Directors in employing Haskins & Sells, as independent public accountants to audit the books, records and accounts of the Company and its subsidiaries for 1972. The resolution was adopted, 23,664,836 shares voting "FOR" and 48,147 shares voting "AGAINST."

Stockholder Proposals

The following resolutions were introduced by management on behalf of Messrs. Lewis D. Gilbert, John J. Gilbert and Dr. Joseph Viverito, stockholders:

First Proposal:

"RESOLVED: That the stockholders of Southern Pacific Company, assembled in annual meeting in person and by proxy, hereby request that any new stock option plans be made subject to the following provisions:

(a) That shares to be optioned will be optioned in yearly installments as nearly equal as possible, and that the right to purchase shares in each installment will not be cumulative and will expire to the extent not exercised during the applicable installment period:

(b) That the aggregate purchase price of the shares covered by an option may not exceed 150% of an individual's annual cash compensation:

(c) No options will be granted in any year to executives who are within 18 months of their automatic retirement date on March 31 of such year:

(d) It shall be a negative factor in granting new options if an optionee has sold optioned stock to pay off a loan, enabling the optionee to pick up new options:

(e) That the option price be not less than the per-share book value."

The resolution failed to carry as 21,468,099 shares voted "AGAINST" and 1,192,233 shares held by 7,169 stockholders, representing 5.26% of the votes cast, voted "FOR" the resolution.

Second Proposal:

"RESOLVED: That the stockholders of Southern Pacific Company, assembled in annual meeting in person and by proxy, hereby request that the Board of Directors take the necessary steps to rotate the location of the Annual Meeting between New York City and other areas where large concentrations of stockholders are."

The resolution failed to carry as 21,623,051 shares voted "AGAINST" and 962,313 shares held by 6,161 stockholders, representing 4.26% of the votes cast, voted "FOR" the resolution.

No other matters were presented for action at the meeting.

About This Issue

Both employes and stockholders are receiving again this year a special June issue of the *Bulletin*, containing the summary report on our Company's Annual Meeting (pp. 2-5), formerly sent to stockholders in a separate mailing. COVER: Rounding a curve near Gila Bend, Ariz., is our new unit steel train with 52 cars of coiled steel from Kaiser's Southern California mill, enroute to Midwestern auto plants (pg. 8).



George L. Fischer, Jr., a stockholder from Wynnewood, Pa., and Mrs. Fischer were interested participants in the 1972 Annual Meeting.

Management Comments

Mr. B. F. Biaggini, President of the Company, opened his remarks to the stockholders by recognizing "the great services of four Southern Pacific Company directors who will not be offering their valuable counsel and experience in our board meetings after the election today. We were greatly saddened by the death last month of Mr. Richard A. Grant of Los Angeles. Mr. Grant was Chairman of the California Portland Cement Company and a director of Southern Pacific since 1962. Three of our other directors have not stood for re-election this year, as they have reached the retirement age designated by the board. They are Mr. Paul L. Davies of San Jose, Mr. Henry U. Harris of New York, and Mr. D. J. Russell of San Francisco. Mr. Davies, a Southern Pacific director since 1957, is senior director and former Chairman of FMC Corporation and a senior partner of Lehman Brothers. Mr. Harris, Chairman of Harris, Upham & Co., has served on the Southern Pacific board since 1960. Both of these gentlemen have been most valued associates."

"I have some special words," Mr. Biaggini continued, "for the other gentleman, Mr. Donald J. Russell, who is retiring as Chairman of Southern Pacific today and has been deeply involved in everything our Company has done for the past 52 years, since he took a summer job with a track gang in the Sierra Nevada when he was a

Among the Company officers at the Annual Meeting were, from left, Vice President, General Counsel and Director A. C. Furth; Vice President-Operations R. D. Spence; Vice President D. K. McNear; President B. F. Biaggini; Secretary A. E. Hill, and Vice President and Treasurer R. J. McLean.



Stanford student in 1920. Mr. Russell was born in 1900—just three days into the new century—and his career in transportation has spanned the time from the early automobiles and airplanes until man has repeatedly walked on the moon. He became a director of Southern Pacific in 1943, President in 1952, and was elected Chairman in 1964. For two decades, he has been a leader in American transportation, an excellent manager and outstanding innovator, and much of the transportation system which Southern Pacific will carry into the 21st Century will be based on his work. He has offered inspirational leadership to all of us at Southern Pacific."

Mr. Biaggini reported an improvement in business so far in the second quarter and said prospects are good for continued growth in 1972. This trend is being demonstrated on Southern Pacific's railroad subsidiaries by increased carload traffic, particularly of motor vehicles and parts, lumber, building materials, chemicals and pulp and paper.

"We are on the threshold of seeing some real economic growth in the United States during the next several years," Mr. Biaggini declared, "and Southern Pacific, which is a barometer of national business conditions, will share in that growth. Net income last year was $101.7 million—the first time Southern Pacific's earnings have exceeded $100 million on a generally accepted accounting basis."

He stressed, however, the need for prompt approval of freight rate increases now pending before the Interstate Commerce Commission and the Price Commission to help meet the railroad industry's rising costs in 1972. "The requested increases are non-inflationary," Mr. Biaggini said, "as they cover less than half of the industry's increased labor costs in 1972 and represent a passing through of important gains in productivity to the railroads' freight customers and ultimately to consumers."

He pointed out that Southern Pacific's rail net ton miles rose 50% and rail freight revenue rose 66% in the past 10 years. Trucking revenues rose 74% in the same period and in 1971 topped $100 million for the first time, reaching $102.5 million. Pipeline revenues in 1971 were 2½ times what they were 10 years before.

SOUTHERN PACIFIC COMPANY
AND SUBSIDIARIES
Consolidated Income for Three Months Ended March 31, 1972
Compared with Corresponding Period of 1971

	1972	1971	Increase (Decrease)
	$	$	$
Railway operating revenues	305 512 323	284 266 593	21 245 730
Railway operating expenses	238 914 861	221 714 016	17 200 845
Net revenue from railway operations	66 597 462	62 552 577	4 044 885
Taxes other than Federal income	25 016 874	23 034 360	1 982 514
Equipment and joint facility rents—Net charge	10 767 679	9 842 518	925 161
Income from railway operations	30 812 909	29 675 699	1 137 210
Income from operations of non-railway companies	6 316 769	5 934 014	382 755
Income from operations	37 129 678	35 609 713	1 519 965
Other income	7 142 994	8 716 826	(1 573 832)
Income before fixed charges and Federal income taxes	44 272 672	44 326 539	(53 867)
Fixed charges	10 688 073	10 167 398	520 675
Income before Federal income taxes	33 584 599	34 159 141	(574 542)
Federal income taxes			
Current—before investment credit	7 200 624	6 736 789	463 835
Less investment credit	2 915 000	394 000	2 521 000
Current—net of investment credit	4 285 624	6 342 789	(2 057 165)
Deferred	9 434 000	9 090 000	344 000
TOTAL	13 719 624	15 432 789	(1 713 165)
Income—before minority interests	19 864 975	18 726 352	1 138 623
Less minority interests	230 825	265 126	(34 301)
NET INCOME	19 634 150	18 461 226	1 172 924
Net income per share—based on the average number of common shares outstanding after deducting treasury stock	.74	.69	.05

"Our big improvements program—$1.8 billion in the past 10 years—has greatly increased efficiency and capacity to handle more business," Mr. Biaggini said. "Our Total Operations Processing System, for example, has been an immensely successful computer system which gives our customers instantaneous information on the progress of their shipments and gives management a host of valuable tools to improve performance." (See page 12.)

Capital improvements planned for 1972 total $267 million, with $154 million budgeted for new railroad equipment alone, and another $107 million in freight cars is presently contemplated for 1973 deliveries. Capital spending in 1971 totaled $163 million.

Construction is well underway on Southern Pacific's $39 million, fully-computerized freight car classification yard at Colton, Calif., east of Los Angeles. When completed next year, Mr. Biaggini said, the yard will help speed rail traffic between the West Coast and our Southern transcontinental route.

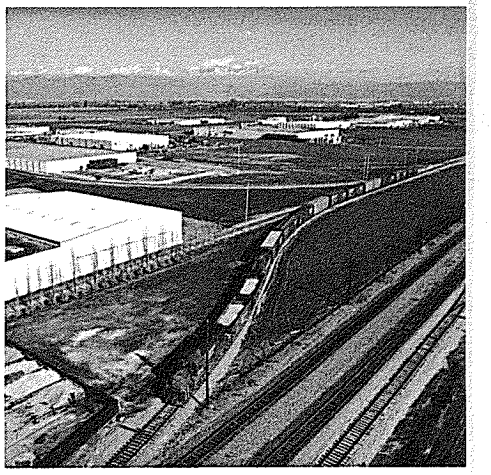
Stockholder N. W. Garrett, left, listened to management reports of substantial growth. In the picture at right, President Biaggini makes a point with Financial Columnist Eugene R. Knoblauch, left, and General Public Relations Manager James G. Shea, center.





Versatile Auto Transport

Pacific Motor Trucking's new auto carrier, developed from concepts originated in PMT research, is more versatile than any other now in use: it can carry eight full-sized cars, or 10 subcompacts, or a mixture of various automobile sizes. New hydraulic controls for the ramps make better use of space, simplify loading and unloading and help prevent in-transit damage.



Industrial Growth

Train on spur track serving Southern Pacific's Oakmead Industrial Park at Sunnyvale, on San Francisco Peninsula. Industrial development activities in 1971 resulted in a net gain of 499 carload-producing industries located on our rail lines, and this pace is continuing in 1972. Well-planned industrial parks are responsive to today's demand for environmental improvement.

Directors and Officers Present

In addition to Mr. B. F. Biaggini, the officers of the Company and its subsidiaries were in attendance:

Directors: Thomas M. Evans; Kenneth L. Isaacs; Robert A. Magowan; Richard K. Miller; Richard S. Perkins; Alan C. Furth, Vice President and General Counsel; and Allan E. Hill, Secretary. Officers: R. D. Spence, Vice President-Operations; D. K. McNear, Vice President; H. A. Nelson, Vice President and Controller; Robert J. McLean, Vice President and Treasurer; H. A. Waterman, Senior General Attorney; J. G. Shea, General Public Relations Manager; C. E. Eagan, Assistant Secretary; A. W. Faaet, District Traffic Representative (Philadelphia); H. J. Heim, Transfer Agent; and O. G. Linde, President, Southern Pacific Land Company.

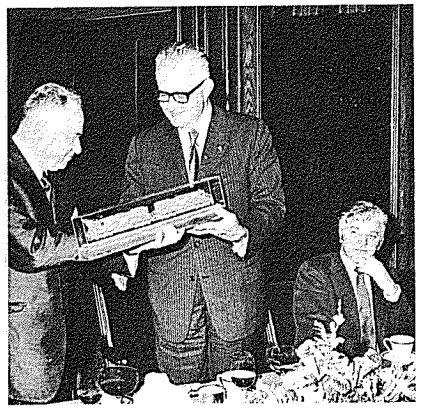
Dividend

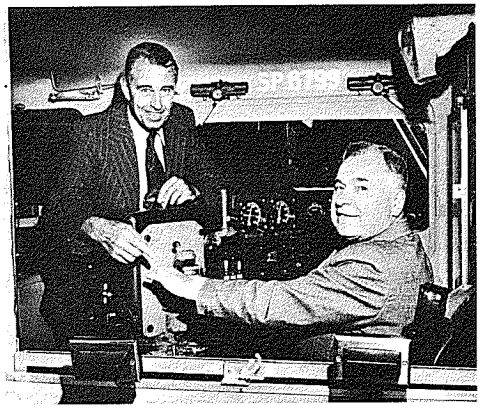
At its meeting on the day following Stockholders' Meeting, the Board of Directors declared a quarterly dividend of 52¢ a share on the outstanding capital stock payable June 19, 1972 to stockholders of record May 30, 1972. Previously, the quarterly dividend had been 50¢ a share.

June 23, 1972

A. E. HILL
Secretary

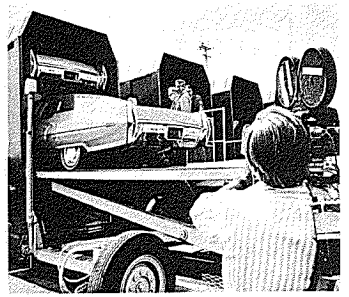
Southern Pacific Company
One Market St.
San Francisco, California 94105





USSR Minister of Railroads B. P. Beschev, left, accepts souvenir locomotive models from President B. F. Biaggini at San Francisco dinner, as Soviet Consul-General Alexander I. Zinchuk, seated, looks on. Our simulator for training locomotive engineers in Cerritos, Calif., is scene at right as Minister Beschev handles controls under tutelage of Vice President-Engineering and Research W. M. Jaekle.

Russian Railroaders Visit



Television cameraman films Russian inspection of Southern Pacific-designed Stac-Pac containers for carrying autos in Oakland, above. Below, the Soviet railroaders engage in technical discussions with Asst. Vice President-Research P. V. Garin, (back to camera), with models in foreground.



SEVEN of Russia's top railroad leaders visited Southern Pacific facilities in Los Angeles and the San Francisco Bay Area on June 5 and 6.

Heading the delegation was USSR Minister of Railroads Boris Pavlovich Beschev. The two-day visit was part of a 15-day tour of U.S. transportation facilities, sponsored by the U.S. Departments of State and Transportation.

In the Los Angeles area, the Soviet railroaders saw, among other facilities, Southern Pacific's busy piggyback center; Taylor Yard (one of five major electronic freight car classification yards on the system); and our simulator for training locomotive engineers.

In the San Francisco Bay Area, they visited the General Office computer center and entered into detailed discussions of the Total Operations Processing System (TOPS) and various technical research projects with Southern Pacific officers. They also visited trucking, container, communications and auto transport facilities and viewed the unloading of autos from Vert-a-Pac rail cars and Stac-Pac containers.

"We are very pleased," President B. F. Biaggini told the visiting railroaders at a San Francisco dinner in their honor, "that Minister Beschev and members of your delegation chose to be guests of Southern Pacific."

"I think this visit and the exchange of ideas that has taken place," he added, "is a fitting follow-up to President Nixon's recent trip to Moscow and that many more visits of this kind between our two countries will continue to improve our mutual understanding."

He presented Mr. Beschev with miniature models of two 3,600 horsepower SD 45 locomotives—the type used in our mainline freight service.

Responding, the Soviet minister said, "In the name of myself, my colleagues and the Soviet Union, I express full appreciation to you, honorable President Biaggini, for your hospitality. You have made full use of technological achievements, and it is because of this that you have the best railroad in the United States. All your people have done everything possible to make our visit profitable, and we have seen everything we wanted to see."

Like Mr. Biaggini, he referred to Mr. Nixon's visit to Russia and stressed the warmth and cordiality with which it was received. "Anyone who knew what was involved," he said, "could not help but be impressed by the agreements reached by the leaders of the two countries."

Mr. Beschev was also presented with miniature United States and U.S.S.R. flags. "I will keep them with the locomotives," he said, "and permanently display them in my office as a reminder of the great Southern Pacific."

A delegation of American railroaders will make an exchange visit to Russia later this summer under the sponsorship of the Association of American Railroads. Southern Pacific also had a representative in previous delegations to the Soviet railroads in 1960 and 1966.

Safest Railroad in the U. S.

Southern Pacific has won the railroad industry's most prestigious safety award, the Harriman Gold Medal, for having the best safety record of all major American railroads in 1971.

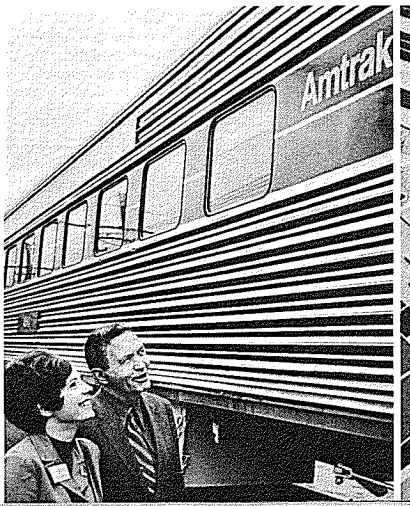
The St. Louis Southwestern Railway (Cotton Belt), a Southern Pacific subsidiary, also won the gold medal for Class B railroads, the next size classification, for the second year in a row.

Federal Railroad Administrator John W. Ingram presented the medals at a Washington luncheon this month.

Southern Pacific earned the medal by posting a record of only 3.72 injuries for every million man hours worked on its lines, including its Northern California subsidiary, the Northwestern Pacific. The accident to hours worked ratio was the lowest ever achieved in Southern Pacific's history. During 1971, the railroad also had the lowest number of collisions and derailments per million train miles it ever recorded.

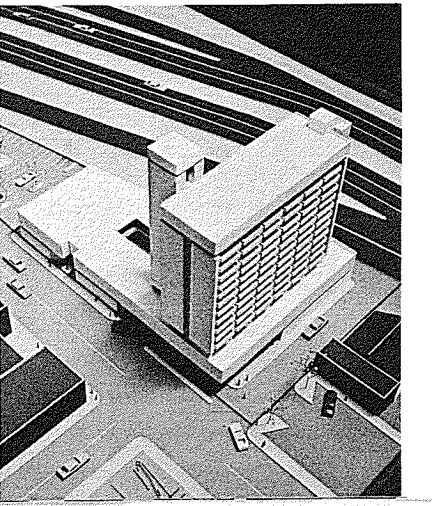
Amtrak's Refurbished Cars

Pretty Barbara Roy, passenger service representative for Amtrak, checks out a refurbished car on the "Coast Starlight" with J. W. Ketchum, Southern Pacific engine service officer assigned to Amtrak. The National Railroad Passenger Corporation hopes to have remodeled cars on the three Amtrak routes we operate this summer, and has instituted daily service on the "City of San Francisco" route for the summer season.



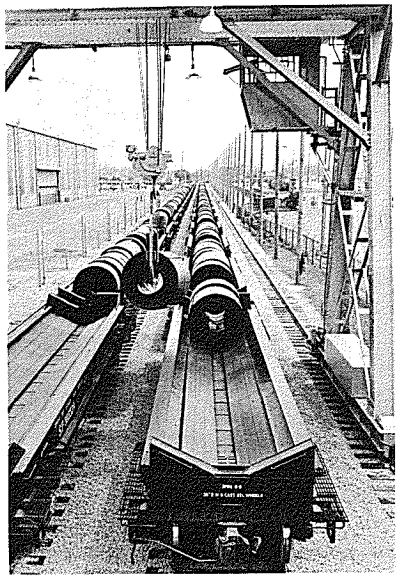
Golden Spike Hotel

Construction should begin this Fall on a 300-room, 11-story hotel—called the "Golden Spike"—which will rise on property owned in part by Southern Pacific in Sparks, Nev. The two-story base of the development, shown in this model, will include a casino, restaurants and shops. The new Interstate 80 freeway is nearby. Civic Center Enterprises, the development operators, expect it to open in Fall, 1973.





Design of the new Southern Pacific coil steel cars allows the 50-car train to be loaded within 24 hours by a gantry crane, shown above and below, which rolls up and down the tracks. It only takes one man to operate the crane. In the "fish-eye lens" photo, opposite page, the steel train stretches for half a mile across the Arizona desert.



Steel Train

Every six days, a 50-car Southern Pacific train pulls out of Kaiser Steel Corporation's mill at Fontana, Calif., loaded with massive coils of steel which will be transformed into automobiles by General Motors in the Midwest.

Unit trains operating on this scale make transportation news, and the steel train, which made its initial run in April, represents several "firsts." It's believed to be the first unit train of steel products, and it has the longest run of any unit train in America—2,175 miles—judging from tariffs filed with the Interstate Commerce Commission. Its special 100-ton capacity steel coil cars were designed by Southern Pacific for fast, efficient loading and maximum payloads.

The whole package of economies from easy loading and full-train operation have enabled Kaiser Steel, for the first time, to meet Midwestern competition on its home ground and sell a substantial amount of California steel to the automobile industry.

Jack J. Carlson, president and chief executive officer of Kaiser Steel, announced the multi-year contract with General Motors, which calls for shipment of 300,000 tons of steel a year and said it "reflects an important marketing achievement for Kaiser Steel."

He credited "a unique combination of production, marketing and transportation techniques" with providing an outlet for the extra rolling capacity in Kaiser Steel's hot-rolled strip mill. Foreign competition has been taking about one-third of the Western steel market, he said, and current depressed demand and low prices on the world market have cut into Kaiser's sales of semi-finished steel in the overseas market.

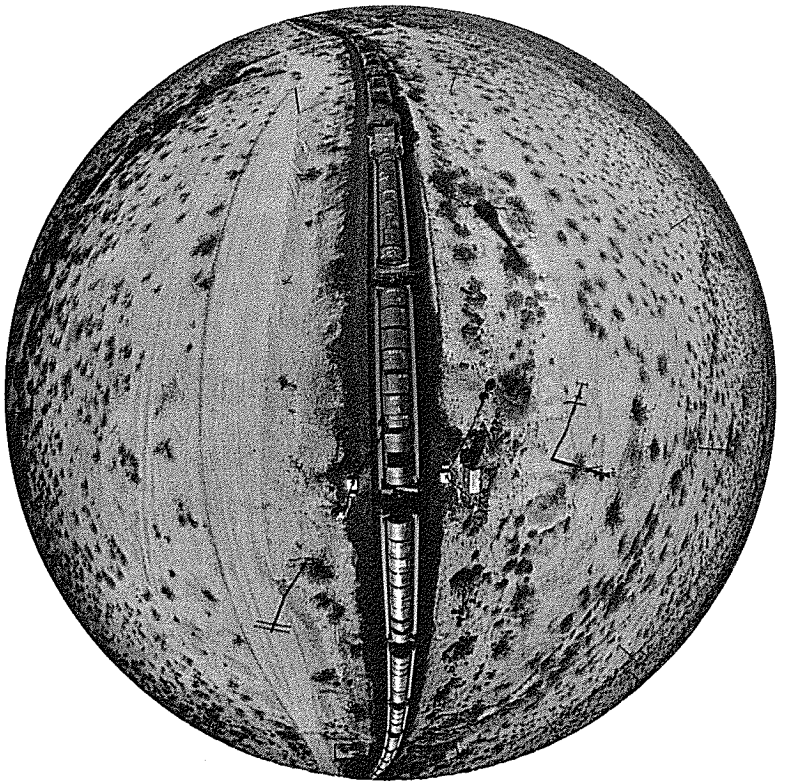
For Southern Pacific, it's all new transcontinental traffic.

To make the steel train possible, a task force of Southern Pacific traffic and transportation specialists developed the plan to shuttle the steel eastward every six days by defining the best operation in terms of turn-around time, impact on existing traffic flow and fullest possible utilization of equipment.

Then a team of the railroad's mechanical engineers designed the coil steel cars, and 125 of them were built, at a cost of about $2 million. The cars have several innovations.

• Designers were able to reduce the "tare" weight — the unloaded weight of the car itself — from as much as 65,000 pounds to 53,000 pounds, a substantial improvement for a car which can carry a 100-ton load. The payload is that much bigger.

• Any size of steel roll, ranging from 34 to 86 inches in diameter, can ride nestled without tie-down devices in the cars, which are essentially open cradles on 43-foot center sills. The cars are engineered to handle any combination of coils within the 100-ton total weight; coils ranged from 6½ to 15 tons each in the first shipment.



• Loading costs and turn-around time of equipment are minimized because a gantry crane with a single operator in the cab can easily load or unload a full 50-car train within 24 hours. The crane at Kaiser straddles two 25-car capacity tracks and rolls back and forth carrying the round steel coils with a "C"-shaped hook.

• The cars have special couplers to reduce slack action, draft gears to reduce out-of-service time for maintenance, and roller bearings with heat-sensitized bolts which pinpoint any overheated journals for train crews, who are alerted to the problem by trackside hot-box detectors.

The steel trains run from Kaiser's mill, 40 miles east of Los Angeles, on Southern Pacific's main line through Arizona and New Mexico to Tucumcari, and then are routed via Rock Island and Milwaukee Road to Hennepin, Ill., near Chicago. The steel is then redistributed to various General Motors automobile plants. Each train will make the round trip, including time for loading and unloading, within 12 days.

The iron ore which Kaiser uses to make steel has also moved on Southern Pacific unit trains for many years. A daily train now carries the ore from Kaiser's Eagle Mountain mine in Southern California 164 miles to the steel plant.

Madam President



Nicerita Revelo, standing, supervisor in the Videofile room at San Francisco, checks a point with Amelia Barquez, key punch operator, also a native of the Philippines. The Videofile system makes possible the filing and retrieval of waybills by television.

MEETING Nicerita Revelo, Philippines-born supervisor in the Videofile room of Southern Pacific at San Francisco, you quickly note that she is pretty and bright and rather quiet. But you also soon see that she is educated, has a considerable sense of political awareness, and is deeply involved in the changes and challenges of the world around her.

A youthful-appearing mother of six who recently won her U.S. citizenship, Mrs. Revelo is the first woman to serve as president of the Filipino-American Council of San Francisco, which has about 25,000 members.

"Women should be more involved in today's happenings," she says. "Women are basically sensitive to people with special problems, such as the handicapped, the unemployed and the underprivileged — and we can react to these people, and get results for them."

The functions of the Filipino-American Council, which includes 20 affiliate groups, are varied. It provides scholarships, aids victims of disasters such as typhoons back in the islands, helps senior citizens here, and assists newly arriving Filipinos to get settled in the Bay Area by finding them housing and jobs and teaching them local customs. A priority project for the future is the establishment of a cultural trade center.

"The aim of our organization," says Nicerita, "is to form a strong union in order to protect our mutual interests, and to achieve better understanding, coordination and support among ourselves and with other Americans of different national origins."

Nicerita's second year, of her two-year term as president of the Council, will be climaxed July 1 through 4 with the third annual Filipino-American Friendship Day Celebration. There will be a Friendship Day Queen Coronation and Ball at a major hotel, a talent show and, on the Fourth, a parade through the streets of San Francisco.

To get ready, Nicerita — who routinely works about 15 hours a week on Council business evenings and week-ends — lately has been putting in more than 30 hours a week on top of her work at Southern Pacific. Not only must dozens of event details be planned, but she also helps enlist support from businesses and individuals, including many city officials with whom she is on a first-name basis after her years of civic work as a leader of the Filipino colony here.

Does she find it difficult to combine her roles as a working mother, wife and community leader?

"Not really," she says. "My family helps me so much in many ways. When there is any problem in the family we sit down, talk and try to solve it."

Her husband Dean, a retired merchant marine chef, does most of the cooking both for the family and for Council functions which center at the Revelo home. Their daughter and five sons, who range in age from 8 to 22, have their own household routines besides school work, and most hold down either full or part-time jobs too.

"The boys run errands for me and provide transportation for members of the Council," Nicerita says.

A native of Mindanao, second largest of the 7083 islands making up the Philippines, Mrs. Revelo was educated in Manila and taught elementary school for five years before coming to the U.S. in 1949. Here she learned key punch operating, and her first job with Southern Pacific eight years ago was in that type of work. Now she supervises a shift of six operators in the Videofile section, where about 400,000 waybills and related documents a month are recorded on videotape to save storage space and provide for fast retrieval. Southern Pacific was the first company in the U.S. to install this system, in 1968.

"I love it here," says Nicerita about Southern Pacific. "I'll work here forever if they'll let me. The people are nice, and the pay and benefits are better than anywhere else I have worked."

Nicerita comes from a large, well-educated family. Her father was in political life, one brother is a judge, one sister is a lawyer, and seven brothers and sisters are teachers, all in the Philippines. Two brothers died in World War II, one after making the Bataan Death March.

She is a strong believer in family unity. "There are many good qualities which should be encouraged in growing children," she explains. "Being independent and family-minded and becoming good citizens are important ones."

She can be, and is, proud of the family she is rearing. They are all honor students. All except Cermefeliz, her 8-year-old daughter, are professional musicians; the youngest boy was only 13 when he joined the musician's union. Sometimes they form a combo called the Revelers. Each is able to contribute financially to the family and to his own education.

"We just want our children to be good Americans," Mrs. Revelo says.

And with a mother like theirs, how can they miss?

LEFT: Shown at their comfortable Sunset District home in San Francisco are Cermefeliz, 8, seated next to her mother; and standing, l-r, Dennis, 22, the eldest son; Tyrone, 13, and Dean Revelo, the proud father. RIGHT: Mrs. Revelo listens attentively to band rehearsal. That's Randolph, 19, on the saxophone, and Dean, Jr., 17, playing drums. (Not available for these pictures was the fifth son, Alan, 20.)





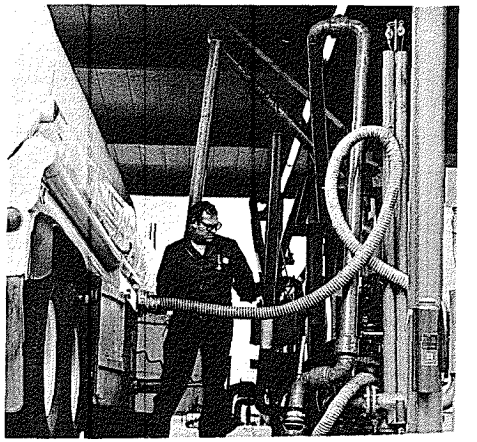
New Pipe Lines Process Contributes To Cleaner Air

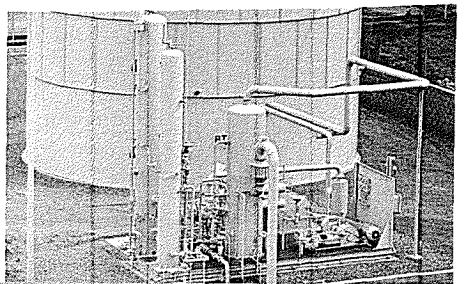
When gasoline vapors escape into the air and combine with it, they can develop into a strong pollutant. To prevent such escapes during the loading of tank trucks, our Southern Pacific Pipe Lines operation has invested in "vapor recovery systems" which contain and then condense the vapors back into gasoline.

These systems vary in some details. In the set-up shown at right, gasoline flows into the truck through the pipe shown behind the operator's head, and vapors accumulating in the process are pulled back through the flexible hose to the reprocessing unit (lower right), where they are condensed back into usable gasoline again. Both the pipe and the hose are attached to the tank truck by vacuum seal.

These reprocessing units look—and are—expensive. Instead of having to install their own vapor recovery systems, SPPL's oil company customers use our facilities while loading their tank trucks at San Jose, Brisbane and Colton—three of SPPL's major terminals.

Keeping gasoline fumes from escaping into the atmosphere solves only a small part of the total air pollution problem, but it's a step in the right direction.





TOPS: Alive, Growing, Changing

TOPS—Southern Pacific's Total Operations Processing System — burst upon the transportation industry four years ago as the most advanced and complete "real-time" computer and telecommunications system in the business.

It's been in continuous, 24-hour-a-day operation since May, 1968.

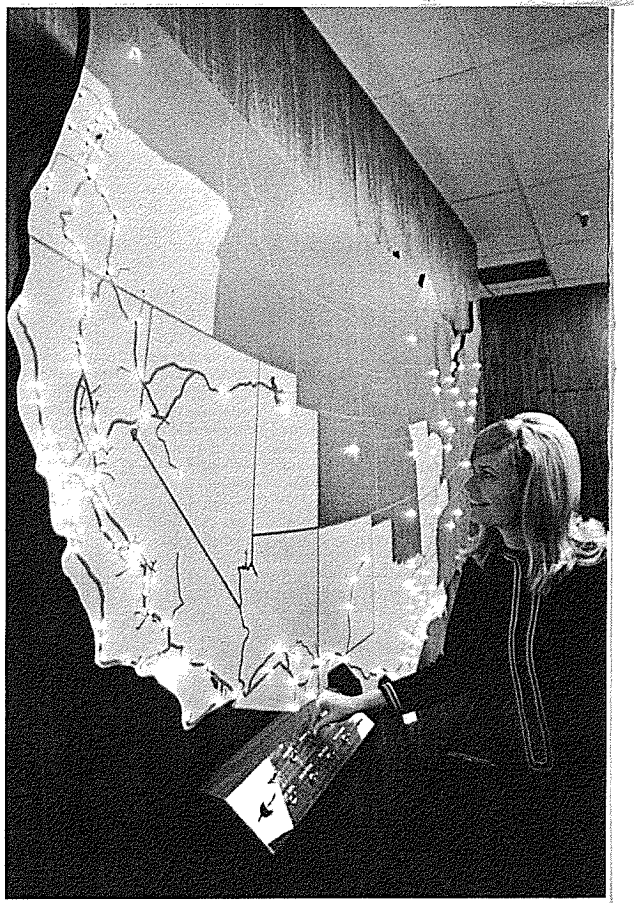
"It has been an immensely successful system," President B. F. Biaggini told Southern Pacific stockholders last month, "which gives our customers instantaneous information on the progress of their shipments and gives management a host of valuable tools to improve performance."

Tops initially cost $22 million, he added, but "we are saving more than $5 million a year on better car and locomotive utilization alone."

One could only guess how much TOPS has been worth as a sales and marketing tool—but Traffic Department officers say it's worth a lot, by improving both the quality of train service and customer information programs.

A shipper or receiver can ask the nearest Southern Pacific sales office, anywhere in the country, for a status report on a car, and our traffic man can get his answer from the central computers in San Francisco in an average of 3.5 seconds.

Some 340 shippers — those with many cars moving, or regular freight movements with "assigned" cars — subscribe to Southern Pacific's CARLOC program. The computers scan the reports, watching for the 210,000 assigned cars on American railroads. At either 8 or 24-hour intervals, a concise, standardized report is sent to our nearest traffic office, telling the individual customer just what has happened to all his cars which are on our lines. Many then enter this information into their own computer programs.



TOPS program designer Marilyn Schofield lights up the map to show the system's extent. Instantaneous TOPS information is available at 475 reporting terminals at 360 key locations across the nation.

TOPS monitors the performance of up to 120,000 freight cars which might on a given day be on our 14,000-mile railroad network, in 850 freight trains, over 200 major yards and terminals, or spotted on some of more than 130,000 industrial service track locations.

TOPS helps car distributors locate and schedule empty cars for delivery to shippers, and tells them if the empties are delayed or diverted, in time to get others. Operating officers plan work assignments on the basis of advance reports of incoming traffic. Paperwork and accounting is streamlined, problem areas identified, misrouted cars caught. TOPS does about 300 things like this.

Biggest savings have been in equipment utilization, as we police our billion-dollar inventory of rolling stock. Before TOPS, Southern Pacific had 18 boxcars on line for each one being loaded that day. The ratio now is down to 14 to 1, and on really good days as low as 11 to 1.

An unanticipated dividend has been TMIS (for Terminal Management Information Service). Computers use TOPS data to generate local cost and performance yardsticks for 30 important terminals. Local managers use these to make switching service faster, more consistent, less costly.

A total of 24 computers are assigned to various Southern Pacific projects (including one ordered for the Colton yard). Only two of these are really the central computers for TOPS, but almost all of them interface with TOPS, or use its enormous data base.

So TOPS is clearly hard at work. But where does it go from here? Will it have to be replaced as computer technology advances? As other systems catch up, or as the railroad itself changes?

TOPS will just keep going, explains J. W. Germany, general manager of System Management Services, because it is changing all the time.

"It's a dynamic, responsive system for railroad management," he declares. "We've literally made 10,000 modifications to it. Additions and modifications have been made to TOPS every three weeks since the first day of operation. Version 82 went into effect just the other day."

Most modifications were planned from the start, part of the gradual development of 300 major functions which TOPS performs. Others were added because of new situations or ideas.

Locomotive maintenance reports were put into the system on schedule last year, just as one example, so power distributors and mechanical people could anticipate scheduled shipping and inspection dates. Now a file is being built on a satellite computer of warranty information for such costly locomotive components as engines, traction motors, generators or turbochargers.

"Some time this summer," explains one TOPS planner, "perhaps in version 84, we'll start reporting serial numbers of components removed or replaced by repair crews. TOPS will check these against the component inventory to see if the warranty is still in effect. If so, we can move for prompt recovery."

A staff of 90 people is working

TOPS' central computers in San Francisco (below) keep in constant two-way contact with operating locations like the Warm Springs, Calif., yard office (right) or the busy Eugene, Ore., yard's computer control center (lower right). The big red boxcar is a "Hy-Cube" to carry auto parts.







on this stream of improvements in the TOPS product.

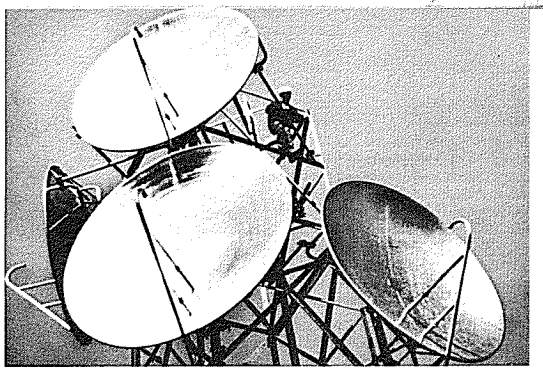
"Just as a vineyard requires cultivation and pruning, our work on TOPS will never be done," says Vice President-Operations R. D. Spence. "We'll need to keep digging, cleaning up input and output, asking questions, expanding our thinking and infusing new ideas into the operation, using the wealth of information TOPS provides."

"Constant change and innovation are with us," adds Germany. "The railroad keeps changing. Horizons of management and supervisors keep broadening. People using TOPS every day are finding more and more uses for it.

"New computer hardware and software are better and faster, and we keep adapting to it: we're in the third-and-a-half generation of Southern Pacific computers now.

"And we have to respond alertly to what our customers want — we can't make them conform to what is easiest for us."

Car scheduling is the big new thing coming up for TOPS. Customers, and our operating and traffic forces, according to Germany, would get "a computer-provided trip plan for every loaded and empty car that comes on our lines.



Microwave is the reliable, high-capacity communications system that links TOPS field units with central computers, and Southern Pacific has the largest private microwave network in the world. It spans 6,200 miles of terrain between tower stations like the one shown under construction above; 600 miles more are being added in 1972.

"Our people will also be able to ask the system for schedule quotations for any point-to-point move on Southern Pacific lines."

Vice President-Traffic F. E. Kriebel sees these as "capabilities few carriers will be able to match" and says "car scheduling will certainly enhance our ability to sell service to shippers."

Detailed design work—for modified programs using new computers and for enlarging the data collection process — has already begun and will extend through 1974.

Then, when a car is reported into TOPS, the system will generate a complete schedule for that car, including each train schedule on which the car is due to move, and the times at each yard when it is due for set out or pick up. Car movements will be measured against these schedules, and any changes affecting destination time will trigger an automatic alert — usually in time for corrective action to be taken if needed.

That is what "real-time" means — in time to help.

TOPS at Work, Here and Abroad

TOPS is going to work on the British Railways, the Canadian National, Burlington Northern, Union Pacific, Missouri Pacific and other railroads — although sometimes under a different name.

And TOPS On-Line Services, Inc., a subsidiary developed to market Southern Pacific's TOPS expertise, is now also working for the National Railways of Mexico on other projects.

When TOPS proved its success several years ago, Southern Pacific recognized that easy interchange of data between railroads, using compatible computer language, would help the entire industry, and that other carriers' use of TOPS to improve operations could boost performance of interline traffic. So we offered TOPS to any American railroad without charge (except for such direct costs as reproducing software programs for their use), and several railroads are adapting the basic TOPS programs to fit their own operations.

Other organizations wanted more help, including design and installation of their systems and training for their personnel. TOPS On-Line Services was set up with this broader market in mind, and it also provides on-line computer services for various commercial organizations.

British Rail, for instance, has contracted for TOPS On-Line teams and their Southern Pacific experience to help install a $24 million TOPS network to cover freight moving over 12,000 miles of Britain's railways by 1975. The first cut-in is expected for the West of England late next year.

TOPS On-Line also performs other forms of management consulting service, and in April the Mexican Railways commissioned it to make a two-year study of operations, maintenance, mechanical work and financial and corporate planning. A working team of seven Southern Pacific officers will spend three months in Mexico developing a set of plans to improve these functions. Two of these officers will remain on the project for two years, working closely with Mexican Railway officers to implement the plans.

EDITORIAL

It's Time for Congress to Pass The Surface Transportation Act

THIS WILL BE THE YEAR — we hope — that Congress finally acts to modernize national transportation policies, to equalize treatment of various forms of transportation, and to help the railroad industry in some of its major problem areas.

Whether or not this will happen in 1972 depends on how much sense of urgency a busy Congress has in moving existing transportation bills through the legislative process before it adjourns to hit the campaign trail. This, in turn, depends on the desire for such reforms that the general public and people particularly interested in the health of our railroads demonstrate to Congress.

The necessary legislation is currently before both the House and Senate, and committees have held hearings.

The Surface Transportation Act. (Senate bill 2362 and House bill 11207) is what the railroads are pinning their hopes on this year. Basically, it contains many recommendations made in the 1970 "Astro" Report, the product of America's Sound Transportation Review Organization which, under the leadership of former Senator George A. Smathers, delineated the industry's pressing problems and proposed some solutions.

The Surface Transportation Act also is the product of an unprecedented joint effort by the railroad, highway and water carriers. Faced with common problems plaguing the entire surface transportation industry, these competing groups sat down and worked out a basic program which all could support.

The STA contains proposals, for example, all desperately needed by the railroad industry, which would:

- Establish a Revenue Financing Division within the Treasury Department, with authority to make or guarantee up to $5 billion in loans to carriers unable to obtain private financing at reasonable interest rates. This would be patterned after the Reconstruction Finance Corporation, which made over a billion dollars in loans to railroads during the depression and still made a profit of about $100 million for the government after paying expenses.
- Prohibit taxation of transportation property at a higher value, or at higher tax rates, than those applied to other property. So serious is this problem of discriminatory taxation that the Senate Commerce Committee found in 1968 that almost one-fourth of the $300 million in property taxes paid by the railroads was assessed under unfair tax procedures.
- Require that 5% of all federal funds given to a state from the Highway Trust Fund be used for highway grade crossing safety purposes, and authorize the Secretary of Transportation to require that up to 10% be spent for this purpose in states where the need is great.
- Expedite the process by which little-used branch lines can be abandoned, by permitting abandonment when they fail to recover variable costs. It requires the Interstate Commerce Commission to complete action on a proposed abandonment within 7½ months of receiving the request. (The trustees of the Penn Central, for instance, have said they have litle chance of successful reorganization unless they can get rid of excess trackage.)
- Require the ICC to establish rate standards which would return operating costs, capital costs, and a reasonable return on investment. The Commission would also be compelled to grant interim rate increases to offset cost increases.
- Extend ICC regulation to for-hire motor transport of livestock and certain processed agricultural products, and require water carriers to make public their commodity rates. Currently, railroads are totally covered by ICC regulations, but only 39% of truck transport and 13% of barge transportation is regulated. These provisions would go a long way toward instilling fair competition.

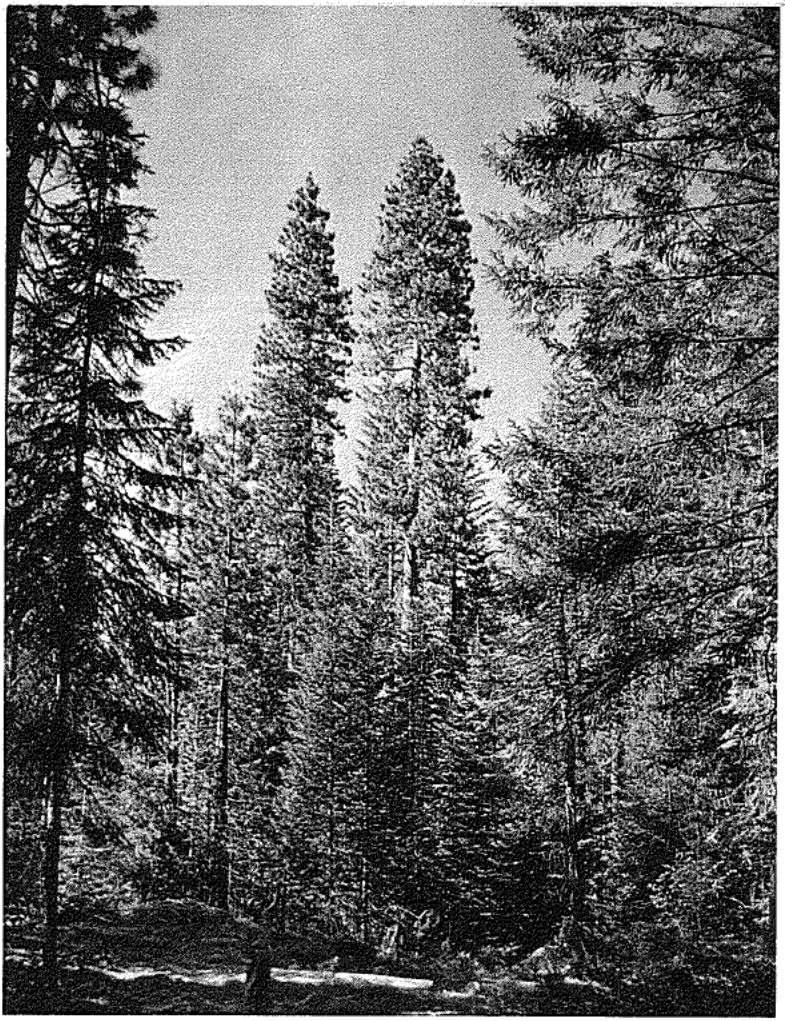
While the Surface Transportation Act represents the major concerns of the industry, it is not the only legislation being considered. The Administration has two bills before Congress, the Transportation Assistance Act and the Transportation Regulatory Modernization Act. The railroad industry supports the first of these because it contains provisions (similar to the Surface Transportation Act) for tax reform and federal insurance of railroad equipment obligations. The Regulatory Modernization Act would create problems, however, in ratemaking and freedom of entry into truck or barge operations unless amended.

We can't know, of course, what final shape the new laws will have when they come from Congress. But we hope at least some of our major goals can be accomplished.

We do know, however, that this won't happen unless Congress is thoroughly convinced that a great number of people out there are concerned about our country's transportation system.

This you can do. You can call or write or wire your Congressman, urging him to do everything in his power for corrective legislation. You can urge Commerce Committee members in both houses onward, and you can ask your relatives and friends to help, too.

Southern Pacific *Bulletin* Vol. 56, No. 6
The *Bulletin* is published monthly by the Public Relations Dept. for active and retired employes. Editorial Office: One Market St., San Francisco 94105; Mailing Office (address changes): P.O. Box 2366, South San Francisco 94080.
James G. Shea, General Public Relations Manager
Robert G. Ottman, Editor



Southern Pacific forest land near McCloud, Calif., after a second logging. Our foresters manage timber for long term yields, by careful selective harvesting.

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